

Activity of plant essential oils against antibiotic resistant *Enterococcus faecalis* isolated from diarrheic children

ABSTRACT

Activity of plant essential oils and their fractions was evaluated against characterized isolates of antibiotic resistant *Enterococcus faecalis* recovered from diarrheic children. The isolates were confirmed by polymerase chain reaction (PCR) targeting 16S rRNA gene amplification followed by nucleotide sequencing and accession numbers retrieved were MW349990.1, MW349859.1, MW332122.1, MW356805.1, MW349975.1, MW349988.1, MW356790.1, MW356244.1, MW341593.1 and MW332549.1. These isolates were screened for antibiotic susceptibility to a wide range of antibiotic groups and mean zone of inhibition (ZOI) of all antibiotics were recorded. Antibacterial activity of plant essential oils (n=05) was checked against three antibiotic resistant isolates of *E. faecalis*. Three plant essential oils having higher ZOI including *Cinnamomum verum*, *Syzygium aromaticum* and *Nigella sativa* were used against resistant *E. faecalis* isolates to determine minimum inhibitory concentration (MIC). The lowest MIC observed was of *S. aromaticum* (11.39 ± 3.94 mg mL⁻¹). The *S. aromaticum* n-hexane plus chloroform fraction displayed higher mean ZOI (16.67 ± 2.51 mm), while the lowest MIC was of n-hexane oil fraction. Based upon gas chromatography-mass spectrometry (GC/MS) analysis, the most effective fatty acid was eugenol which is present in higher proportion in both fractions. These fractions of essential oils proved safe for the treatment of antibiotic resistant diarrheic cases of children caused by *E. faecalis*.